

**CERTIFICATE****No. A/11-142152 Rev 00**  
**Date 2011-02-27 Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

Customer References		Sandvik References		
709587/Holmgren	Customer order 2010-12-30	Order No.	Subs No.	ABSMT Dispatch note
003-00991 ITEMS		226341	195923	31837/54
		ABSMT No.	C.Code	
		300-35245	15	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no <b>1.4435</b>
<b>Steel making process</b> Electric furnace	

**Technical requirements**  
PED/23/EC, EN 10216-5 TC1  
SS 219711, DIN 17458 TC1, NFA 49-117-09/85  
ASTM A-213-09A AW, ASME SA-213-ED-10 AW, ASTM A-269-08  
NACE MR0175/ISO 15156-3:2009, HRB Max 80

EXTENT OF DELIVERY						
It	Product designation	Heat	Lot	Pieces	Kg	M
01	THT-3R60-12-1	527381	25336	77	127.0	462.00
	12.00 X 1.00	527381	25339	90	149.0	540.00
			Total	167	276.0	1002.00

**TEST RESULTS**  
**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
527381	0.015	0.36	1.79	0.029	0.008	17.30	13.09	2.54
	N							
527381	0.042							

**Chemical composition, product (weight%)**

Lot	C	Si	Mn	P	S	Cr	Ni	Mo
25336	0.017	0.37	1.73	0.030	0.007	17.32	13.16	2.55
25339	0.017	0.37	1.75	0.029	0.007	17.36	13.14	2.55
	N							
25336	0.052							
25339	0.054							

**Quality assurance - Ulrik Rodling / QA-manager Tube & Pipe**  
**MTC Service / Certificates**

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
25336	304	344	569	54	51
	302	344	567	53	50
	304	342	566	54	51
	299	341	565	55	52
25339	291	327	563	53	49
	281	320	561	54	50
	276	309	545	56	51
	287	322	563	53	49

**Hardness test**

Lot	Min	Max
	HRB	HRB
25336	73	79
25339	70	75

**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to EN 10246-2, ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed and quenched.

**Marking:**

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W  
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 12.00 X 1.00 MM HT 52738  
1 SS LOT 25336 DIN 2391/EN 10305-1 COLD \*QA-TUBE\*  
SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W  
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 12.00 X 1.00 MM HT 52738  
1 SS LOT 25339 DIN 2391/EN 10305-1 COLD \*QA-TUBE\*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to  
Pressure Equipment Directive (97/23/EC) by  
TUEV NORD; notified body, reg.no. 0045.

The number of tests are based on the size of the manufacturing lot  
before cutting to finished lengths.

The delivered products comply with the specifications and  
requirements of the order.

The material is manufactured according to a Quality system,  
approved and registered to ISO 9001.

The certificate is produced with EDP and valid without signature.